

San Diego Gas & Electric Company
FERC Order 717 Transmission Function Employee Job Descriptions
July 10, 2020 Electric Grid Operations

Director – Electric Grid Operations: Responsible for overall transmission system operations and reliability functions. Oversees operational relationship between SDG&E and California ISO. Reports to Vice President – Electric System Operations.

EMS Hardware Supervisor: Manages and coordinates activities related to any purchases, improvements, maintenance, and upgrades on the EMS relating to hardware, networking, and physical / cyber security. Manages 24x7 on-call EMS hardware support activities to ensure maximum system reliability. Directs and prioritizes work of technical computer support personnel on systems based in two San Diego locations. Reports to the EMS Operations Manager.

EMS Operations Manager: Responsible for overall operation and maintenance of SDG&E's mission critical EMS/SCADA system, including real-time data exchange with California ISO EMS. Also responsible for overall computer engineering support, maintenance and upgrades to SDG&E's EMS/SCADA hardware, local and wide area network infrastructure. Reports to Director – Electric Grid Operations.

EMS Program Analyst: To plan, develop, and maintain EMS, including system upgrades, integration, databases, software and applications support. Responsible for monitoring and controlling Bulk Power transmission system. Reports to the EMS Software Supervisor.

EMS Program Analyst - Supports 24X7 mission critical business operations & EMS SCADA real-time control system. Maintains, enhances, configures, and troubleshoots EMS SCADA hardware equipment which includes: Front End Processors, Servers, Workstations, Networks, Local and Wide Area Networks and associated support equipment. Performs maintenance and upgrades of the EMS/SCADA systems. Reports to the EMS Hardware Supervisor.

EMS Project Coordinator Advisor: Responsible for coordinating and overseeing EMS activities to ensure all projects, visual interfaces, and data are accurate and reliable when released to Grid Control. Troubleshoots and resolves issues regarding EMS operations. Develops EMS “Real-Time” Operator and Transmission Security Management displays. Maintains Network Status Processor subsystem for Operator “Situational Awareness” of Transmission Energization State. Reports to the Grid Control Manager.

EMS Software Supervisor: Supervises EMS operations software staff. Manages daily EMS software operational tasks. Oversees, plans, specifies, develops, maintains and coordinates SDG&E's real-time EMS activities, including failovers, system upgrades, ICCP testing and updates, application/system integration, databases updates, software and applications support. Monitors EMS health, system and application performance, SCADA data integrity, system integrity, reliability, and availability. Supervises EMS software 24x7 real-time support. Reports to EMS Operations Manager.

Engineer: Responsible for receiving and processing outage requests for Transmission Grid facilities with electric engineering, field personnel and the CAISO. Schedules qualified personnel to perform required switching activities. Provides support to the Operations Shift Supervisor. Reports to Grid Outage Coordination Supervisor.

Engineer I: Conducts and coordinates engineering operational studies related to the EMS. Conducts engineering studies which require knowledge within the assigned discipline. Identifies actual or potential problem areas and develops corrective actions. Responsible for technical review and content of selected operational procedures. Ensures accurate data is entered into systems that support real-time operations. Coordinates operational studies with the CAISO, neighbors and other sections of the company. Assists with training of operators and new engineers. Performs other related duties as assigned. Reports to Grid Control Manager.

Engineer II: Conducts complex engineering studies. Identifies actual or potential problems in the electric power system and develops mitigating actions. Responsible for technical content of selected Standard Operating Procedures as assigned. Supports Real-time operation. Coordinates operational studies with the CAISO, neighbors and other sections of the company. Assists with training of operators and new engineers. Performs other related duties as assigned. Reports to Engineering Support Team Lead.

Grid Contract Services Analyst: Serves as the ISO Scheduling Coordinator for day-ahead scheduling of SDG&E's existing Transmission Contracts. Assists with the administration of existing Transmission Contracts and the processing of CAISO invoices. Reports to the Grid Operations Services Manager.

Grid Ops Contract Analyst: Review quotes and proposals in preparation for contracts. Submit and track progress of EMC Requisitions for purchase order contracts and agreements. Log and track agreements/contracts; including tracking purchase order expiration dates, total dollar amounts, and invoiced against amounts. Submit contract amendment change order requisitions for renewals and additional funding when applicable. Assist with AP SAP Portal invoice processing. Reports to the EMS Hardware Supervisor

Grid Control Manager: Responsible for overall management of grid control activities, including real time operations, technical support, and training. Also provides managerial interface with California ISO, other transmission operators, and regulatory agencies provides oversight for NERC compliance activities for the department. Reports to Director – Electric Grid Operations.

Grid Operations Services Manager: Oversees operation planning studies and associated development, maintenance and compliance aspects of operating procedures that convey the conclusions of the various engineering analysis. Interacts with the CAISO and neighboring utilities. Oversees the administration of pre-CAISO Transmission Contracts and associated Scheduling responsibilities. Reports to Director – Electric Grid Operations.

Grid Outage Coordination Supervisor: Supervises team of Outage Coordination and Senior Outage Coordination Advisors responsible for receiving and processing outage requests for Transmission Grid facilities with electric engineering, field personnel and the

CAISO. Schedules qualified personnel to perform required switching activities. Currently reports to Grid Control Manager.

Mission Control Training Manager: Responsible to direct, provide guidance and oversight for the System Operator Training Programs for EDO and EGO in producing and maintaining adequately trained, well qualified and competent operating personnel to ensure safe and reliable operation of the Electric Distribution and Transmission Systems and in compliance with all applicable regulatory requirements and NERC Reliability Standards. Directs training through , trainers and training specialist for System Operators. Reports to the Director - Electric Grid Operations.

NERC System Operator Trainer: Responsible for Grid Control training activities, monitoring and tracking individual training progress. Responsible for ensuring those system operators are trained on NERC, WECC, CAISO and SDG&E procedures and policies. Coordinates with Distribution Operations to provide training for field and system operators. Researches and develops training programs for new equipment deployed on the system and provides training to appropriate personnel. Reports to the Mission Control Training Manager.

Operations Shift Supervisor – Energy Control Bulk Power: Responsible for supervising real-time grid monitoring and switching activities, emergency response, system restoration, real-time Existing Transmission Contract schedule changes, and interface with ISO real-time dispatch desk. Currently reports to Grid Control Manager.

Outage Coordination Advisor: Responsible for receiving and processing outage requests for Transmission Grid facilities with electric engineering, field personnel and the CAISO. Schedules qualified personnel to perform required switching activities. Provides support to the Operations Shift Supervisor. Reports to Grid Outage Coordination Supervisor.

Principal EMS Analyst: Responsible for managing and maintaining the SDG&E EMS/SCADA computer software. Ensures the system's compliance with NERC CIP requirements. Makes continuous improvement on the EMS/SCADA systems and its applications to ensure the SDG&E grid control center has the necessary tools to sufficiently and efficiently operate the SDG&E transmission grid. Leads sub-teams of EMS software engineers to develop new, enhanced and improved applications and monitoring software to improve the reliability and availability of the SDG&E transmission grid operation. Reports to the EMS Hardware Supervisor.

Principal EMS Analyst: Responsible for managing and maintaining the SDG&E EMS/SCADA computer software. 24x7 support of mission critical business operations & EMS/SCADA real-time control system. Ensures the system's compliance with NERC CIP requirements. Makes continuous improvement on the EMS/SCADA systems and its applications to ensure the SDG&E grid control center has the necessary tools to sufficiently and efficiently operate the SDG&E transmission grid. Leads sub-teams of engineers to develop new, enhanced, and improved applications, and monitoring software to improve the reliability and availability of SDG&E's EMS/SCADA system. Reports to the EMS Software Supervisor

Principal Engineer: Provides technical and analytical support to Grid Control. Performs long term outage coordination. Responsible for providing procedures for new and existing electrical facilities. Provides technical advice to Control Room personnel and field personnel on electrical facilities and operational scenarios. Responds to fire and other natural disasters when operation of Bulk Electric System can potentially be (or is) compromised. Assists in investigating events on the electric system. Interacts with the CAISO on various operational issues and procedures. Reports to Grid Operations Services Manager.

Project Manager II: Responsible for managing and overseeing technical projects through a matrix organization that implements grid control-specific projects. Supports and maintains all critical business systems directly linked to the grid control room and support staff. Reports to Grid Control Technical Support Manager.

Scheduling Coordinator: Serves as the ISO certified Scheduling Coordinator for day-ahead scheduling of SDG&E's existing Transmission Contracts and handles processing of ISO invoices. Reports to Grid Operations Services Manager.

Senior Transmission Compliance Advisor: Manages plans and coordinates department compliance activities to meet NERC and WECC reliability standards. Currently reports to EMS Operations Manager.

Senior EMS Hardware Analyst: Supports 24X7 mission critical business operations & EMS SCADA real-time control system. Maintains, enhances, configures, and troubleshoots EMS SCADA hardware equipment which includes: Front End Processors, Servers, Workstations, Networks, Local and Wide Area Networks and associated support equipment. Performs maintenance and upgrades of the EMS/SCADA systems. Reports to the EMS Hardware Supervisor.

Senior EMS Program Analyst: Supports 24x7 mission critical business operations & EMS SCADA real time control system. Responsible for EMS systems administration, database updates that accurately model the SDG&E power system, application programming. Responds to customer requests and offers solutions. Reports to the EMS Software Supervisor.

Senior EMS Program/Analyst: Supports 24x7 mission critical business operations such as the Real-time model of the Transmission system. Responsible for EMS advanced application functions and database updates to accurately model the SDG&E power system. Supports some other tasks of engineering nature, such as the Transmission Availability Report. Responds to operators' requests and offers solutions. Reports to Engineering Support Team Lead.

Senior Energy Administrator: Responsible for complex settlement issues and development of related policy. Manages Reliability Service (RS) costs by forecasting RS costs and the annual FERC RS Testimony. Represents SDG&E's interests with respect to the CAISO Transmission Control Agreement (TCA) and the CAISO Tariff. Supports annual Transmission Revenue Balancing Account

(TRBA) FERC Filing by preparing TRBA related forecasts. Prepares analysis and reports in response to requests from Accounting, Auditing, CAISO, CPUC, Environmental Services, Legal, Management, Resource Planning, other SDG&E and Sempra Energy departments. Reports to Grid Operations Services Manager

Senior Outage Coordination Advisor: Responsible for receiving and processing outage requests for Transmission Grid facilities with electric engineering, field personnel and the CAISO. Schedules qualified personnel to perform required switching activities. Provides support to the Operations Shift Supervisor. Reports to Grid Outage Coordination Supervisor.

Senior Technical Support Advisor: Manages essential functions as a Central Point of Contact (CPOC) for the operation of the Electric Transmission Grid in a safe, reliable and economic manner. Manages critical support of real-time system operations and mandatory NERC/WECC reliability standards. Manages communication between SDG&E, the California Independent System Operator (CAISO), Western Electricity Coordinating Council (WECC) and all related utility Transmission System Operators with respect to system issues and outages. Reports to the Grid Control Manager.

Senior Technical Support Advisor: Provides essential support as a Central Point of Contact (CPOC) for the operation of the Electric Transmission Grid in a safe, reliable and economic manner. Supports real-time system operations and mandatory NERC/WECC reliability standards. Has an understanding of the Outage Coordination (OC) scheduling system, SDG&E Electric Transmission Grid, transmission operations activities, Supervisory Control and Data Acquisition (SCADA) system that uses the EMS and field Remote Terminal Units (RTU). Ensures open lines of communication exist between SDG&E, the California Independent System Operator (CAISO), Western Electricity Coordinating Council (WECC) and all related Transmission System Operators. Supports the development and maintenance of electric substation Control and Protection Notes (C&P Notes), Substation Operating Diagrams (SOD) and other related technical documentation. Reports to the Grid Technical Support Manager.

Senior Transmission Document Control Advisor: Controls and manages the review and creation of Standard Operating Procedures to support real-time operating and compliance activities. Reports to the Grid Technical Support Manager.

Systems Analyst (NSA): Manages plans and coordinates department compliance activities to meet NERC and WECC reliability standards. Currently reports to EMS Operations Manager.

Team Lead – Engineering Support Team: Responsible for providing directions for various duties of engineering nature; such as transmission model update in EMS, Remedial Action Schemes, Facility Rating determinations and operational engineering studies. Interfaces with internal and external parties. Currently reports to Grid Operations Services Manager.

Training Specialist: To Deliver and provide training to Trainers and employees by developing and revising System Operator formal training programs to include Human

Performance Improvement tools, new delivery techniques or applications in; lesson plans, training modules, demonstration models, training guides and multimedia visual aids for the Training Team in the Initial and Continual Training Programs for System Operators in Grid Control and Distribution Control Centers. Including Authorization Instructor led and CBT for employees and contractors for the Authorization List. Conduct System Operator training needs assessment in order to identify training development/program needs to meet FERC/NERC/WECC and SDG&E training standards and requirements. Acts in a lead capacity to provide direction/training on technical support for applications, investigating discrepancies on training processes and providing solutions/workarounds as applicable. Documents and performs quality check of training materials and records to ensure compliance with NERC Reliability Standards in preparation for Audits. Reports to the Mission Control Training Manager

Transmission Compliance Program Manager: Responsible for the critical function of coordinating and ensuring compliance with the multiple FERC, NERC, WECC and State mandatory standards that apply to Electric Grid Operation. Responsible for preparing and supporting Regulatory Affairs in responding to data requests related to compliance or system disturbances. Responsible for participating in the development of new standards, or modifications to existing ones, that applies or will apply to Electric Grid Operations. Responsible for supporting Grid's 24x7 Operation and assuming the lead in filing any required Federal, Regional and State reporting required to be filed within specific time frames after an event ranging from 1 to 24 hours depending upon magnitude. Responsible for coordinating compliance responsibilities with the CAISO with regard to the NERC requirements applicable to Electric Grid Operations. Reports to Grid Control Manager.

Transmission Compliance Team Lead: Manages, plans and coordinates department compliance activities to meet the NERC and WECC reliability standards. Responsible for participating in the development of new standards, or modifications to existing ones, that applies or will apply to Electric Grid Operations. Manages the review and development of Standard Operating Compliance Procedures to support the real-time operating or compliance activities. Reports to EMS Operations Manager.

Transmission Document Control Advisor: Controls and manages the review and creation of Standard Operating Procedures to support real-time operating and compliance activities. Reports to the Grid Control Manager.

Transmission Planning Project Manager: Performs advanced technical work and develops Operating documents. Leads technical studies and manages aspects of the operations planning processes that impact the SDG&E bulk power system. Builds and maintains strong working relationships with internal and external stakeholders. Provides support to the Real Time Operators and responds to fire and other natural disasters when operation of Bulk Electric System can potentially be (or is) compromised. Assists in investigating events on the electric system. Currently reports to the Grid Operations Services Manager.

Transmission System Operator: Assumes responsibility and authority to implement real-time actions to ensure the safe and reliable operation of the SDG&E Electric Transmission Grid and associated interconnections and ensures compliance with FERC mandatory

reliability standards. Maintains electric transmission system to assure continuity of service. Prepares, checks, and directs orders for electric transmission system switching operation. Operates electric supervisory control devices including adjusting system voltage. Performs emergency limited substation switching. Directs restoration of transmission facilities. Maintains records and operating diagrams. Prepares reports and performs other related duties as assigned or required. Reports to the Operations Shift Supervisor – Energy Control Bulk Power.